TEXAS A&M UNIVERSITY

SYLLABUS

Course title and number: CSCE 411 Design and Analysis of Algorithms
Term: Fall 2013
Meeting times and location: MWF 10:20-11:10 HRBB 113

Course Description and Prerequisites

The course focuses on the study of computer algorithms, in particular design paradigms of algorithms, the analysis of time and space requirements of algorithms, and the correctness of algorithms. Furthermore, the course studies NP-completeness and undecidability.

Prerequisites: CSCE 221, CSCE 222 and CSCE 315

Learning Outcomes or Course Objectives

At the end of the semester, you should:
• be familiar with fundamental algorithms and algorithmic techniques;
• given a particular application, be able to decide which algorithm among a set of choices is best;
• be able to prove correctness and analyze running time and space complexity of a given algorithm;
• be able to design efficient algorithms for new situations using the techniques learned;
• be able to prove that a problem is NP-complete using reduction and understand the implications;
• understand the notion of undecidability, know that some problems are undecidable, and comprehend the implications.

Instructor Information

Name	Prof. Dr. Andreas Klappenecker
Telephone number	979 458 0608
Email address	klappi@cse.tamu.edu
Office hours	MT 1:30-2:30pm or by appointment
Office location	HRBB 509B

Textbook and/or Resource Material

Cormen, Leiserson, Rivest, Stein: Introduction to Algorithms, 3rd edition, The MIT Press, 2009.

Grading Policies

Your grade will be based on these components:
• Quizzes: 10% (your lowest quiz grade will be dropped)
• Homeworks: 40% (written problems and programming assignments)
• Exams: 45% (one midterm worth 20% and one final exam worth 25%)
• Culture reports 5% (5 reports, see course webpage for deadlines)
The course grades will be assigned according to the scale:
A (90-100 % of total points), B (80-89%), C (70-79%), D (60-69%), F (0-59%)
A curve might be applied if the course average is below expectation.
Grades must be earned and are not negotiable.

Course Topics, Calendar of Activities, Major Assignment Dates

The midterm is exam is tentatively scheduled for Monday, October 7, in class.
The final exam is scheduled for Tuesday, December 10, 8am-10am, in our classroom HRBB 113

A tentative schedule is given below:

Dates	Topic	Required Reading
M Aug 26	Introduction	
W Aug 28	Sorting Lower Bound	
F Aug 30	Sorting Lower Bound	
M Sep 2	Divide and Conquer Algorithms	
W Sep 4	Divide and Conquer Algorithms	
F Sep 6	Divide and Conquer Algorithms	
M Sep 9	Greedy Algorithms	
W Sep 11	Greedy Algorithms	
F Sep 13	Greedy Algorithms	
M Sep 16	Matroids	
W Sep 18	Matroids	
F Sep 20	Matroids	
M Sep 23	Dynamic Programming	
W Sep 25	Dynamic Programming	
F Sep 27	Dynamic Programming	
M Sep 30	Amortized Analysis	
W Oct 2	Amortized Analysis	
F Oct 4	Amortized Analysis	
M Oct 7	Midterm Exam	
W Oct 9	Graph Algorithms	
F Oct 11	Graph Algorithms	
M Oct 14	Graph Algorithms	
W Oct 16	Graph Algorithms	
F Oct 18	Graph Algorithms	
M Oct 21	Graph Algorithms	
W Oct 23	Graph Algorithms	
F Oct 25	Graph Algorithms	
M Oct 28	Randomized Algorithms	
W Oct 30	Randomized Algorithms	
F Nov 1	Randomized Algorithms	
M Nov 4	Randomized Algorithms	
W Nov 6	Randomized Algorithms	
F Nov 8	Randomized Algorithms	
M Nov 11	NP-Completeness	
W Nov 13	NP-Completeness	
F Nov 15	NP-Completeness	
M Nov 18	NP-Completeness	
W Nov 20	NP-Completeness	

F Nov 22	NP-Completeness
M Nov 25	Undecidability
W Nov 27	Undecidability
F Nov 29	Undecidability

M Dec 2 (A&M: F Dec 2) Review

Other Pertinent Course Information

The course webpage can be found at
http://faculty.cs.tamu.edu/klappi/csce411-f13/index.html

You will find homework assignments, a current class schedule, and other information on that page. Make sure that you prepare thoroughly for flipped parts of the class e.g. by reading the assigned chapter and watching the screencast (when applicable).

Americans with Disabilities Act (ADA)

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information visit http://disability.tamu.edu

Deadline Policy

Turn in all work by the established deadline. In case you have difficulties finishing an assignment contact the Instructor before the deadline. Late work can be accepted only under circumstances beyond the student's control and after arrangement with the Instructor prior to the deadline. **Note**: work turned-in on time is eligible for partial credit. It will always be better to turn work in by the deadline, as trying to 'perfect' it and turning it in late will give you no points at all.

Submission of Work and Late Submission Policy

All assignments must be submitted electronically using the **CSNET** portal **by the due date and time** and an honor-code signed hardcopy must be turned in in the beginning of class of the due date. Late submission beyond the cutoff will not be accepted in general, unless a University sanctioned excuse is provided ahead of time. A student will earn points when he/she submits the assignment on time. Note that email submissions will not be accepted (they will be ignored without notice). You have to follow the submission and media policies and guidelines published on the web.

Regrading Policy

If you believe that an assignment or exam was not correctly graded, then submit within one week a written request to regrade the assignment or exam. A regrading requests must be as specific as possible and must be accompanied by a reasonable amount of justification and documentation. In addition to the work to be regraded and the written regrading request, you need to send an e-mail to both the TA and the instructor so that your request can be tracked. Late regrading requests will not be honored.

Excused Absences and Make-up Policy

Make-ups for assignments and exams will be given only under circumstances beyond student's control (*a university sanctioned excuse*). Prior arrangements with the instructor must be made when feasible and official verification of circumstances necessitating the absence will be required.

Scholastic Dishonesty

As commonly defined, plagiarism consists of passing off as one's own the ideas, work, writings, etc., that belong to another. In accordance with this definition, you are committing plagiarism if you copy the work of another person and turn it in as your own, even if you have the permission of the person. Plagiarism is one of the worst academic sins, for the plagiarist destroys the trust among colleagues without which research cannot be safely communicated. If you have questions regarding plagiarism, please consult the latest issue of the Texas A&M University Student Rules [http://student-rules.tamu.edu/rule52], under the section "Academic Misconduct".

Academic Integrity Statement
"An Aggie does not lie, cheat, or steal or tolerate those who do."

Upon accepting admission to Texas A&M University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning and to follow the philosophy and rules of the Honor System. Students will be required to state their commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the Texas A&M University community from the requirements or the processes of the Honor System. For additional information please visit: http://aggiehonor.tamu.edu

On all assignments and examinations at Texas A&M University, the following Honor Pledge shall be preprinted and signed by the student: **"On my honor, as an Aggie, I have neither given nor received unauthorized aid on this academic work."**

Violations of the Aggie honor code will be reported to the Aggie honors office. The default sanction for a first offence is an F*.